

T 2/5/1

2/5/1

DIALOG(R)File 351:Derwent WPI

(c) 2003 Thomson Derwent. All rts. reserv.

008014886 **Image available**

WPI Acc No: 1989-279998/198939

XRPX Acc No: N89-213892

**Mask inspecting and repairing appts. for semiconductor microcircuit -
uses controlled current of electron beam to scan radiation-sensitive
layers of mask surface, and detects secondary electrons**

Patent Assignee: CANON KK (CANO)

Inventor: AMEMIYA M; UZAWA S; IZAWA S

Number of Countries: 006 Number of Patents: 006

Patent Family:

| Patent No | Kind | Date | Applicat No | Kind | Date | Week |
|---------------|------|----------|-------------|------|----------|----------|
| EP 334680 | A | 19890927 | EP 89303016 | A | 19890328 | 198939 B |
| JP 1244461 | A | 19890928 | JP 8869759 | A | 19880325 | 198945 |
| JP 1244462 | A | 19890928 | | | | 198945 |
| ✓ US 4906326 | A | 19900306 | US 89328459 | A | 19890324 | 199016 |
| ✓ EP 334680 | B1 | 19950802 | EP 89303016 | A | 19890328 | 199535 |
| ✓ DE 68923638 | E | 19950907 | DE 623638 | A | 19890328 | 199541 |
| | | | EP 89303016 | A | 19890328 | |

Priority Applications (No Type Date): JP 8869759 A 19880325; JP 8869758 A
19880325

Cited Patents: 2.Jnl.Ref; A3...9106; JP 55068632; JP 62215957; No-SR.Pub

Patent Details:

| Patent No | Kind | Lan | Pg | Main IPC | Filing Notes |
|-------------------------------------------|------|-----|----|-------------|---------------------------|
| EP 334680 | A | E | 13 | | |
| Designated States (Regional): DE FR GB NL | | | | | |
| EP 334680 | B1 | E | 15 | G03F-001/00 | |
| Designated States (Regional): DE FR GB NL | | | | | |
| DE 68923638 | E | | | G03F-001/00 | Based on patent EP 334680 |

Abstract (Basic): EP 334680 A

The mask inspecting and repairing appts. uses a controlled current of electron beam. For inspection, the surface of a mask (4) having a mask pattern (3) and a radiation-sensitive layer (5), covering it, is scanned with an electron beam (6). By detecting (7) secondary electrons or reflected electrons caused at that time, the state of the pattern is inspected.

If any defect is detected (12-15), the portion of the radiation-sensitive layer on the detected defect is irradiated with an electron beam of greater magnitude than that for the inspection and, thereafter, the exposed portion of the radiation-sensitive layer is removed. Then etching or plating is made to the thus uncovered portion, and repair of the mask pattern is made.

ADVANTAGE - Efficient, does not damage mask.

Dwg.1/8

Title Terms: MASK; INSPECT; REPAIR; APPARATUS; SEMICONDUCTOR; MICROCIRCUIT;
CONTROL; CURRENT; ELECTRON; BEAM; SCAN; RADIATE; SENSITIVE; LAYER; MASK;
SURFACE; DETECT; SECONDARY; ELECTRON

Derwent Class: P42; P73; P78; P84; U11

International Patent Class (Main): G03F-001/00

International Patent Class (Additional): B05D-005/00; B32B-035/00;

B44C-001/22; C23F-001/02; H01L-021/30

File Segment: EPI; EngPI

?